

REMARKS

Favorable reconsideration and allowance of the subject application are respectfully solicited.

Status of the Claims

Claims 1-22 are pending in this application, with Claims 1 and 13 being independent. Claims 1-12 are withdrawn. Claims 14 and 16 are cancelled herein without prejudice to or disclaimer of the subject matter contained therein. Claim 13 is amended to incorporate the features of cancelled Claims 14 and 16 and to improve its form. Claims 9, 15 and 21 are amended to improve their form without narrowing their scope. Claim 23 is newly added. Support for new Claim 23 can be found in the specification at least at page 23, lines 14-20. It is submitted that no new matter has been added by the amendments herein.

Response to Restriction Requirement

The Examiner has imposed a Restriction Requirement among:

- Group I - Claims 1-10, drawn to a recording medium;
- Group II - Claims 11 and 12, drawn to an image forming method; and
- Group III - Claims 13-22, drawn to a manufacturing method.

Applicants affirm their previous, provisional election of Group III (Claims 13-22), with traverse.

It is respectfully submitted that all of the claims could be searched by one Examiner without undue effort. It is also respectfully submitted that it is not mandatory to make a restriction requirement in every possible situation.

It is believed that if one Examiner acts on all of the claims of the present application at one time, overall examining time will be less than if two or more Examiners are involved. It is also earnestly believed that the examination of all of the claims at one time by one examiner in the present application will best ensure uniform prosecution quality. Therefore, in the interest of prosecution economy of time and quality for both the Office and Applicants, it is respectfully submitted that withdrawal of the Restriction Requirement in this application and examination of all pending claims on their merits are appropriate and such action is respectfully solicited.

Rejections Under Section 103

Claims 13-18 were rejected under 35 U.S.C. § 103(a) as allegedly obvious over Asano et al. (U.S. Patent No. 6,511,736). Claims 13 and 19-21 were rejected under 35 U.S.C. § 103(a) as allegedly obvious over Asano et al. in view of either of Hosoi et al. (U.S. Patent No. 6,200,670) or Ikezawa et al. (U.S. Patent No. 5,759,673). Claims 13 and 22 were rejected under 35 U.S.C. § 103(a) as allegedly obvious over Asano et al. in view of Tomizawa et al. (U.S. Patent No. 5,985,425). Applicants respectfully disagree with these rejections.

Before addressing the merits of these rejections, Applicants believe it will be helpful to review some features and advantages of the claimed invention. The present invention, as recited in Claim 13, relates to a method of manufacturing a recording medium comprising a

base material and an ink-receiving layer provided on the base material and containing a particulate material. The method comprises the steps of: producing a coating layer by applying a coating solution containing the particulate material containing particles of crystalline aluminum oxide to the base material followed by drying; applying water to the coating layer to cause swelling; and pressing the surface of the swelled coating layer against a heated mirror-surface drum to produce the ink-receiving layer so that the specular gloss of the surface is not less than 20% as measured at 20°. The particulate material contains particulate aluminum oxide at not less than 70 wt %. The ink-receiving layer contains a binder, and the mixing ratio of the particulate aluminum oxide to the binder is within a range of between 5:1 and 25:1 by weight.

In other words, the ink-receiving layer contains particles of crystalline aluminum oxide and is subjected to a rewet treatment (namely, the steps of applying a coating solution, drying the coating layer, applying water to the coating layer to cause swelling, and pressing the surface of the swelled coating layer against a heated mirror-surface drum). This method provides a recording medium that has improved glossiness, yet maintains ink absorbency. In Applicants' view, the cited references do not teach or suggest the claimed invention.

Asano et al. is not seen to teach or suggest conducting the rewet treatment on crystalline aluminum oxide. Moreover, Applicants note that in the Examples of Asano et al., the ratio of pigment to binder in the uppermost layer (ink fixing upper layer) is from 10:4 to 10:6. Accordingly, the content of the binder is higher than that recited in the claimed invention, namely, 5:1 to 25:1. Applicants further note that the higher content of the binder produces a

smaller amount of interspaces between pigment particles, so that a surface layer having sufficient ink absorbency cannot be obtained.

In contrast, in the present invention, the rewet treatment is conducted on an ink-receiving layer containing particles of crystalline aluminum oxide, thereby achieving good glossiness even though there is a smaller content of the binder to the pigment. In order to make the recording medium of the present invention, a coating solution containing particles of crystalline aluminum oxide is applied to a base material, water is applied to the coating layer that will become an ink-receiving layer in order to cause swelling, followed by pressing the surface of the swelled coating layer against a heated mirror-surface drum. Thus, even when the ink-receiving layer has a structure wherein crystals randomly aggregate, water rapidly enters the interspaces of the random structure, so that the ink-receiving layer easily undergoes swelling and rearrangement of crystals can easily take place. Consequently, the surface of the medium is effectively subjected to the smoothing treatment by press drying using the heated mirror-surface drum. (See page 18, line 21 to page 20, line 1 of the specification.) Moreover, since additional components (i.e., other particulate inorganic or organic pigments) can adversely affect the transparency, porosity and random orientation of the aluminum oxide particles in the ink-receiving layer, the particulate aluminum oxide is preferably not less than 70 wt% of the total particulate materials. (See page 22, lines 10-21 of the specification.) Asano et al. is not seen to teach or suggest this feature of the claimed invention, either.

Secondary references Hosoi et al. and Ikezawa et al. are cited for their teachings regarding the use of barium sulfate. Secondary reference Tomizawa et al. is cited for

its teaching of an alumina-containing layer on the side opposite the recording layer. None of these references is seen to remedy the above-noted deficiencies of Asano et al.

Conclusion


Applicants conclude that none of the cited art, whether taken singly or in the combinations proposed by the Examiner, anticipates or renders obvious the claimed invention as recited in independent Claim 13. Withdrawal of the Section 103 rejections is respectfully requested. The dependent claims under consideration are also submitted to be patentable for the same reasons as Claim 13 and because they set forth additional patentable aspects of the present invention. Separate and individual consideration of each dependent claim is respectfully requested.

Applicants submit that this application is in condition for allowance.

Applicants respectfully request withdrawal of the above-noted rejections, rejoinder of withdrawn Claims 1-12, and issuance of a Notice of Allowance.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



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